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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/586,329

06/04/2007

Andreas Ebneht

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EXAMINER

WOOD, AMANDA P

ART UNIT

PAPER NUMBER

1657

MAIL DATE

DELIVERY MODE

04/03/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/586,329

**Applicant(s)**

EBNETH ET AL.

**Examiner**

AMANDA P. WOOD

**Art Unit**

1657

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/ICE)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_
- Paper No(s)/Mail Date 10/06

### **DETAILED ACTION**

Claims 1, 3, 5 and 6 are presented for consideration on the merits.

#### ***Information Disclosure Statement***

The information disclosure statement (IDS) submitted on 25 October 2006 has been considered by the examiner, and an initialed and signed/dated copy is included with this Office Action.

#### ***Drawings***

The drawings submitted by Applicant on 14 July 2006 have been accepted by the Examiner.

#### ***Claim Rejections - 35 USC § 112, second paragraph***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 20-31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 20-31 provide for the "use of", but, since the claims do not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Siem-Fung et al (Biochim et Biophys Acta 1983) in view of Netzer et al (Drug Discovery Today 2001) and Numann et al (Trends in Cardiovasc Med 2001), as cited in the IDS dated 25 October 2006.

A method is claimed for examining the activity of ion channels.

Siem-Fung et al beneficially teach a method comprising determining the effects of veridrine on ion channel activity in squid axons, by measuring the cell membrane potential and ion (potassium and sodium) concentration in the squid axons, wherein the method is carried out at 5°C (see, for example, figure 1 and tables 1 and 2).

Netzer et al beneficially teaches (see, for example, page 82) that fluorometric assays are used in various HTS methodologies, in particular, in assays of ion channels, in which the properties of potentiometric fluorescent dyes are exploited, wherein upon alteration of cell membrane potential, either alterations in fluorescent intensity occur or the dyes perform fluorescence energy resonance transfer (FRET) with dyes outside the membrane (see, for example, page 82).

Numann et al beneficially teach that a variety of optical technologies are available for detecting ion channel activity in living cells. Numann et al teach that

fluorescent  $\text{Ca}^{2+}$  indicator dyes allow for screening of calcium channels and compounds which trigger intracellular  $\text{Ca}^{2+}$  release. Furthermore, Numann et al teach that these dyes can be assayed using multi-well microtitre plates using specialized kinetic plate readers. Numann et al further teach that indicators of membrane potential can be used and are extremely sensitive because relatively small currents can cause large voltage changes. Numann et al teach that a commonly used optical method for measurement of membrane potential is based on fluorescent oxonol dye, which utilizes FRET (see, for example, page 56-57).

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the methods disclosed Siem-Fung et al based upon the beneficial teachings provided by Netzer et al and Numann et al, with respect to using art-recognized equivalent methods of measuring membrane potentials or ion concentrations in place of conventional patch clamping, as discussed above. Therefore, based upon the combination of teachings provided by Siem-Fung et al, Netzer et al, and Numann et al, it would have been both obvious and beneficial for one of ordinary skill in the art to substitute fluorescent methods for those taught by Siem-Fung et al. The result-effective adjustment of particular conventional working conditions (e.g., using a particular method of measuring ion channel activity and/or membrane potential) is deemed merely a matter of judicious selection and routine optimization which is well within the purview of the skilled artisan.

From the teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed

invention. Therefore, the invention as a whole, was *prima facie* obvious to one of ordinary skill in the art at the time the claimed invention was made, as evidenced by the cited references, especially in the absence of evidence to the contrary.

### ***Conclusion***

No claims allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AMANDA P. WOOD whose telephone number is (571)272-8141. The examiner can normally be reached on M-F 8:30AM -5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jon Weber can be reached on (571) 272-0925. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Examiner

Primary Examiner, Art Unit 1657

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